

## REMARKS

Claims 1, 3-8, and 17-21 were pending in the Application prior to the outstanding Office Action. In the Office Action, claims 1 and 6 were rejected under 35 U.S.C. §102(b). Claims 3-5, 17-20, and 21 were rejected under 35 U.S.C. §103(a) and Claims 7 and 8 were objected to. Applicants will address each basis of rejection in sequence.

### **I. RESPONSE TO REJECTIONS UNDER 35 U.S.C. §102(b)**

In paragraph 3 of the Office Action mailed June 19, 2006, the Examiner rejected claims 1 and 6 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,116,848 issued to Thomas et al. ("*Thomas*").

#### **A. Independent Claim 1 Patentably Distinguishes over *Thomas***

Claim 1, in part, recites:

“a motor assembly for moving said first and second gripper arms between a workpiece-loading position and a workpiece-engaging position, said contact pads contacting the peripheral edge of the workpiece and exerting a force on the workpiece when said first and second gripper arms are located in said workpiece-engaging position; and

a real-time force feedback system for generating an electrical signal representing the amount of force said contact pads exert on the peripheral edge of the wafer and sending said electrical signal to said motor assembly for dynamically adjusting the force exerted by said contact pads on the workpiece while said first and second gripper arms are located in said workpiece-engaging position.”

*Thomas* does not teach a “real-time force feedback system for ... sending said electrical signal to said motor assembly for dynamically adjusting the force exerted by said contact pads on the workpiece.” *Thomas*, in contrast, teaches energizing a solenoid to clamp and release a wafer seated on the end effector. The end effector in *Thomas* includes three active contacts: an active contact 48 located at the distal end of each finger 18, and one active contact 32 located at the proximal end of the platform 14. See Fig. 1.

*Thomas* teaches that the two active contacts 48 and the active contact 36 are actuated by rotating thin metal bands 38. *See* Fig. 3; Col. 4, lines 17-18. These metal bands 38 are actuated by a solenoid 50. Each active contact 48 is predisposed to clamp the wafer due to two pre-loaded torsional springs 42 and 44. Col. 4, lines 48-51. To release the wafer, “the solenoid is energized, thereby pulling the ... contacts 32, 48 away from the wafer.” Col. 4, lines 51-53. *Thomas* teaches that the “electrical actuator used to produce the gripping force provides a wafer presence information and monitors the state of the gripping mechanism.” Col. 6, lines 32-34. In particular, *Thomas* teaches that “the back EMF signal from the solenoid 50 provides useful data to indicate a wafer presence, position, jam, as well as any circuit open/short of broken spring or other mechanism.” Col. 6, lines 46-49.

The ability to “indicate a wafer presence, position, jam, as well as any circuit open/short of broken spring” is not the same as the “real-time force feedback system” recited in claim 1. Therefore, the end effector recited in claim 1 is not anticipated by *Thomas*.

**B. Dependent Claims 6 Patentably Distinguishes over *Thomas***

Dependent claim 6 depends directly or indirectly from independent claim 1. This dependent claim includes all of the limitations of the independent claim from which it depends. Applicants respectfully assert that dependent claim 6 is allowable for at least the reasons set forth above concerning independent claim 1.

**II. RESPONSE TO REJECTIONS UNDER 35 U.S.C. §103(a)**

In paragraph 4 of the Office Action mailed June 19, 2006, the Examiner rejected claims 3, 17, 18, 20 and 21 under 35 U.S.C. §103(a) as being unpatentable over *Thomas* in view of U.S. Patent No. 5,788,453 issued to Donde et al. (“*Donde*”).

**A. Independent Claim 1 Patentably Distinguishes over *Thomas* in view of *Donde***  
Claim 1, in part, recites:

“a real-time force feedback system for dynamically adjusting the force exerted by the first and second gripper arms on the workpiece while said first and second gripper arms are located in said workpiece-engaging position.”

For at least the same reasons discussed above, *Thomas* does not teach a “real-time force feedback system.” *Donde* does not teach or suggest the elements missing from *Thomas*.

*Donde* teaches that a “piezoelectric gripper 106a will bend towards the wafer 102 until it measurably engages the wafer 102, at which point the digital output signal will be generated to signal the computer to stop further bending of the piezoelectric gripper 106a.” col. 9, lines 44-48. However, *Donde* teaches that “once all grippers are in contact with the wafer, the computer 112 will simultaneously increase the voltage control signal to each gripper 106a-d by a predetermined amount.” (emphasis added) col. 10, lines 41-44. Thus, *Donde* teaches that each gripper exerts a fixed amount of force on the wafer to secure the wafer on the blade.

Therefore, claim 1 is not obvious over *Thomas* in view of *Donde*.

**B. Dependent Claim 3 Patently Distinguishes over *Thomas* in view of *Donde***

Dependent claim 3 depends directly or indirectly from independent claim 1. This dependent claim includes all of the limitations of the independent claim from which it depends. Applicants respectfully assert that dependent claim 3 is allowable for at least the reasons set forth above concerning independent claim 1.

**C. Independent Claim 17 Patently Distinguishes over *Thomas* in view of *Donde***

Claim 17, in part, recites:

“a force sensing device coupled to each one of said contact pads, each force sensing device adapted to generate an electrical signal representing the amount of force being exerted by said contact pad against the peripheral edge of the workpiece;”

For at least the same reasons discussed above with regard to claim 1, claim 17 is not obvious over *Thomas* in view of *Donde*.

**D. Dependent Claims 18, 20, and 21 Patently Distinguish over *Thomas* in view of *Donde***

Dependent claims 18, 20, and 21 depend directly or indirectly from independent claim 17. These dependent claims include all of the limitations of the independent claim from which they depend. Applicants respectfully assert that dependent claims 18, 20 and 21 are allowable for at least the reasons set forth above concerning independent claim 17.

### **Additional Remarks**

The references cited by the Examiner but not relied upon have been reviewed, but are not believed to render the claims unpatentable, either singly or in combination.

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application are allowable, and a Notice of Allowance is requested.

Enclosed is a PETITION FOR EXTENSION OF TIME UNDER 37 C.F.R. §1.136 for extending the time to respond up to and including today, October 4, 2006.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 50-3548 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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By: \_\_\_\_\_



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